AMENDMENTS TO THE DRAWINGS:

A new sheet of drawings is submitted labeled Fig. 2

Attachment: New drawing Sheet

REMARKS

The application has been amended to place the application in condition for allowance at the time of the next Official Action.

A new drawing labeled Figure 2 is added showing that the control unit 8 controls a power stroke frequency, the torque, and the two stroke and/or four stroke frequency. The new drawing is believed not to introduce new matter.

The specification is amended to reflect the addition of the new drawing and includes mention of the new drawing in the Brief Description of the Drawings and in the Brief Description of the Embodiment sections. The above changes to the specification are believed not to introduce new matter.

In addition, a substitute abstract of the disclosure is provided on an accompanying separate sheet to address the specification objection noted in the Official Action.

Claims 1-12 were previously pending in the application. New claims 13-23 are added. Therefore, claims 1-23 are presented for consideration.

The new drawing is believed to address the claim objections as to the recited frequency of power stroke, the frequency of two stroke and four stroke and torque. As to the data map for intake valve closing and the data map for exhaust valve closing, the claims do not recite a data map and further clarification of this claim objection is respectfully requested.

Claims 1-12 were rejected under 35 USC §103(a) as being unpatentable over DENBRATT 6,581,551 in view of MIURA 6,523,504. That rejection is respectfully traversed.

The present invention presents a solution whereby the efficiency of a combustion engine is maintained at a high level at high loads as well as low loads. As recited, this is obtained through the use of a variable volume of the compression chamber and a selection of the time of opening and the time of closure of the inlet valves and also with a selection of the frequency with which the power strokes are performed.

The Official Action offers DENBRATT as disclosing these features. However, DENBRATT neither discloses all that which is recited, nor is related to improving an engine efficiency at higher loads. For example, above 50% of the maximum torque of the engine.

Rather, DENBRATT discloses selecting the time of opening and closure of the inlet valve or valves to achieve a self-ignition of the fuel/air mixture within a lower rpm range of the engine.

Accordingly, a person of ordinary skill in the art confronted with the problem of improving engine efficiency of an engine operating with modulated frequency of power strokes and timing of valve opening and closure respectively would not be motivated to look to DENBRATT, in the first instance in order to provide a suggestion to improve the engine efficiency. DENBRATT

is focused on a different problem, that is, promoting self-ignition of the fuel-air mixture in a combustion chamber within a lower rpm range.

Thus, although MIURA appears to disclose modulation of frequency with which power strokes are performed, nevertheless, one of ordinary skill in the art would not have been motivated to combine MIRUA with DENBRATT in the manner suggested. These two references are directed to two different problems which do not lend a solution to one another. Therefore, there is insufficient motivation to combine the references in the manner suggested to render obvious the present claims.

Claims 2-12 depend from claim 1 and further define the invention and are also believed patentable over the proposed combination of references.

In addition, at least claim 2 recites features not disclosed by the proposed combination of references.

Claim 2 recites that at maximum load, the maximum compression chamber volume is applied, upon reduced load, the compression chamber volume is reduced and the closure of the inlet valves is performed earlier, upon further reduction of the load the selection of the frequency of power strokes is performed. Thus, claim 2 defines the order in which the control measures are taken with regard to the load of the engine.

Column 3, lines 36-44 of DENBRATT suggest the use of "normal compression ratio and valve overlap" for maximum engine

load to approximately 50 to 70 percent of maximum load. DENBRATT then performs his timing of valve opening and closure and compression ratio modulation at that reduced load limit or range. DENBRATT does not disclose what is recited in claim 2. Thus, claim 2 is believed patentable regardless of the patentability of claim 1.

By way of further explanation, the present invention relates to a control method for the modulation of the torque of a piston combustion engine that has a compression chamber of variable volume and operable inlet valves.

It is respectfully submitted that DENBRATT is not relevant to a control method for the modulation of torque to improve the efficiency of a combustion engine.

Rather, as set forth above, the steps taken in DENBRATT accomplish self-ignition of the air/fuel mixture of an engine operating in accordance with the homogenous charge compression ignition (HCCI) principle and do not relate to the modulation of the torque of a combustion engine. Thus, there is no motivation for a person of ordinary skill in the art to combine the teachings of DENBRATT with any other reference to render obvious the claims of the present invention.

New claims 13-23 are added. Support for the new claims can be found in the original claims and on page 7, line 15 through page 10, line 3.

In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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LM/mjr

The Appendix includes the following item(s):

- a substitute Abstract of the Disclosure

- a new drawing Sheet for Figure 2 of the drawings